

December 2, 2005

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Dear Madams and Sirs:

This letter updates you on the Expert Review Panel's review of Sound Transit's efforts to develop a package of improvements (ST2) that will be presented to voters at a future election.

At our October meeting, the Expert Review Panel (the Panel) received briefings on: (1) Sound Transit's cost estimating methodology for both capital projects and operation and maintenance; (2) recent decisions regarding the First Hill light rail station; (3) the status of work to determine a preferred alternative for high capacity transit in the I-90 corridor; (4)

project evaluation methodology; (5) Sound Transit's travel demand modeling and ridership forecasting; and (6) the basic elements used by Sound Transit in its financial planning.

Based on the briefings and conversations with Sound Transit staff at the meeting, the Panel offers the following comments and questions.

Capital Cost Estimating Methodology

The Panel reviewed the most recent capital cost estimating methodology prepared by Sound Transit. The review and discussion at our October meeting followed a conference call in late September when several members of the Panel reviewed the initial methodology with Sound Transit staff and members of their consulting team.

In general, the Panel felt that the methodology is sound and consistent with industry standards. Most of the Panel's questions focused on the proposed contingency factors that will be included in the estimates. It is our understanding that cost estimates for Sound Transit 2 (ST2) projects will include differing contingency factors, depending upon the project's stage of development - planning, design, engineering or construction.

In September several Panel Members reviewed the first draft of the capital cost estimating methodology. That draft established ranges for contingency factors that allowed for the variability of project complexity and the level of knowledge that went into developing unit costs for each project. (See table 1.)

However, at the October meeting Panel members noted that the capital cost estimating methodology had been revised to include fixed contingencies for different stages of project development. (See table 2.)

Table 1. Preliminary Design and Construction Contingency Estimates – August 2005

Stage of Project Development	Estimated Contingency Factor
Planning/Conceptual Design/Environmental Review	25% - 40%
Design (30% - 60% complete)	20% - 30%
Design (+ 60% complete)	15% - 25%
Construction Costs (pre awarded bids)	10% - 20%
Construction Costs (at completion)	5% - 15%

Table 2. Revised Contingency Estimates – October 2005

Stage of Project Development	Estimated Contingency Factor
Planning estimates where engineering design is less than 30%	Contingencies set according to different cost factors (e.g. guideway elements below grade 35%, vehicles 5%, or right-of-way 50%)
Design less than 30%	10%
Preliminary Engineering (30%)	20%
Final Design (60% - 100%)	15%
Construction (Bidding)	5%

Panel members observed that the new contingency estimates use the low end of the previous ranges. The Panel expressed some concern that the revised contingency levels (described in Table 2) may be low and suggested using contingency cost ranges that allow estimates to be adjusted for project complexity and other factors. As an example, the Panel pointed out that the engineering and design for the high capacity transit project in the I-90 corridor will likely be at less than five percent completion when the Board makes ST2 decisions. In fact, cost estimates for the I-90 corridor project will be based upon a “representative alignment”, not the actual alignment of the high capacity transit line. With uncertainty regarding final alignment, agreements with adjacent jurisdictions, soil conditions and other environmental factors, the cost estimating methodology should allow for the increase in contingency for particularly complex projects such as the I-90 corridor.

Another area of discussion at the October meeting was the effect of third party agreements on project cost estimates. Project budgets for large capital projects that cross multiple jurisdictional boundaries are often increased as a result of agreements negotiated with adjacent jurisdictions and institutions. In describing the lessons learned from implementation of the Sound Move projects, Sound Transit staff stated that they intend to get jurisdictions to acknowledge that they understand the descriptions for all ST2 project scopes, as a means to better forecast and manage potential third party agreements. The Panel encouraged Sound Transit to secure more formal adoption of the project scopes by jurisdictions and major institutions to better manage unanticipated third party costs.

Ridership Forecasting

Sound Transit is in the process of modifying some of the inputs to the demand modeling that the Panel believes will provide more accurate demand forecasts for potential ST2 projects. For example, as noted in our letter of June 23, 2005, we questioned the values used to forecast parking cost increases that had been incorporated into the model. After examining the parking cost increases in response to the Panel’s concerns, Sound Transit has elected to use a lower rate of increase in parking costs, which is more in line with historical precedence. You should be aware, however, that some of the changes being made to the model will result in different ridership forecasts than were available during the Long-Range Plan analysis. This change in ridership forecasts is entirely consistent with the evolution of demand model capability that one would expect in an ST2-type planning process.

Planning for High Capacity Transit in the I-90 Corridor

During the course of our October meeting the Panel received a status report from Sound Transit staff about the Board’s recent decisions regarding the Long-Range Plan. We understand Sound Transit has narrowed the options for High Capacity Transit in the I-90 corridor to Light Rail or BRT/Convertible to Light Rail. We also received a briefing from WSDOT regarding the I-90 bridge load study and the traffic study they are conducting. The load study is providing further information about the bridge’s capacity to handle light rail, and the parameters within which light rail would need to be designed. The traffic study is examining the impacts of dedicating the center roadway on I-90 to high capacity transit. The

Panel understands that WSDOT is looking at the effects of moving HOV and other auto/truck traffic off of that center roadway and analyzing the impacts on the general traffic lanes on the I-90 bridge and on the surrounding road network (I-5, I-405, and SR520).

The Panel wants to point out an important issue with respect to the I-90 corridor that we believe the Sound Transit Board should be aware of as it proceeds ahead with an ST2 program. If Sound Transit decides to pursue federal New Starts funding for any I-90 corridor transit investment, the Panel believes that BRT/HOV will likely be a required alternative in the analysis that precedes federal approval. In addition, during the presentation by WSDOT regarding the I-90 traffic study, the Panel learned that the study will examine the implications of light rail, BRT/Convertible to LRT, and BRT/HOV operations on the performance of the I-90 bridge.

Based on the Panel's understanding of the capital cost estimating methodology for ST2, even before the detailed analysis is completed, it seems quite likely that the light rail alternative for the I-90 corridor will be deemed more cost-effective than the BRT/Convertible alternative, with each having comparable ridership estimates. Thus, it is important for the Board to know that although one alternative might surface as the best based on the current methods of analysis, another alternative that is currently not being considered (BRT/HOV) could come out of a federally-required alternatives analysis process or from the WSDOT traffic study analysis.

Project Evaluation Methodology

Sound Transit is proposing a project evaluation methodology that will assist the Board to select projects for the ST2 plan. It is intended that the evaluation methodology will be used in comparing different project "packages" with one another (i.e. groups of projects that match revenue estimates in each sub area), and identifying differences among the alternative packages.

The methodology proposes ten (10) categories of criteria against which all projects will be evaluated. The draft methodology makes no distinctions among, nor weights, the criteria. The criteria will be used in two ways: 1) to evaluate each project individually, and 2) to evaluate the entire high capacity transit system as a whole. The Panel had a number of comments about the individual criteria, and several broad comments about the use and application of the methodology.

The Panel suggested that it can be challenging to create a set of evaluation criteria that will be used effectively by decision makers and offered three general suggestions for increasing the effectiveness of the evaluation methodology:

- 1) Test the usefulness with selected Board members in advance of finalizing the methodology. The methodology could be applied to several representative projects to determine its value to Sound Transit Board members in making decisions.
- 2) Consider weighting the criteria, or providing a sense of relative importance among them.

- 3) Quantify as many of the criteria as possible. The more quantifiable the criteria the more useful they will be in making final decisions.

The following provides more detailed comments on the individual criteria.

System Integration - This evaluation criterion asks the question, “Does the service duplicate or compete directly with another ST service?” The Panel cautioned that it is very difficult to assess whether a service is duplicative or complementary. Members suggested that transit agencies should be wary about assuming that transit alternatives that run parallel to one another are duplicative. Services that may appear duplicative often serve separate markets.

Connectivity and Mobility - The Panel noted that there are no references in the criteria addressing service for low-income households. This is a common criterion in other transit systems, and is a criterion used in federal funding programs.

Capital Costs - The Panel suggested that it would be useful to use the cost per mile of a project as a basis to compare other similar projects. In addition, the Panel suggested that it would strengthen the criteria to include cost effectiveness evaluation for each project.

O&M Costs – See below

Environmental Benefits – The proposed methodology suggests that environmental benefits will be evaluated at the system level (as opposed to the project level), and will be qualitative in nature. The Panel suggested that even in the planning stage it is preferable to quantify environmental benefits. For example benefits to energy consumption or air quality can be quantified. Acres of property acquisition outside existing highway or public street rights-of-way can be estimated as another indicator of potential environmental impact.

Land Use and Development – The Panel suggested that there are ways in which this criterion could be more quantitative. For example, geographic information systems (GIS) could be used to estimate the number of households and jobs that would be in close proximity to designated transit centers.

Panel members noted that in the development of many transit systems around the country public/private developments at or near transit centers have supported community land use and development goals, and often generate significant revenues for the transit agency. The Panel suggested that even at this early stage of planning it is helpful to include evaluation criteria that encourage transit agency staff and decision makers to look for those development opportunities. One quantifiable proxy for the potential for future public/private development that could be used in the evaluation criteria is the amount of land purchase that will be required at or near stations or transit centers. The Panel pointed out that the Federal Transit Administration (FTA) New Starts funding criteria considers transit supportive land use plans and policies that encourage transit ridership. (See *FTA Appendix D: FY 2006 New Starts Evaluation and Rating Process*, at http://www.FTA.DOT.gov/documents/Appendix_D.pdf)

Customer Experience – Evaluating the “safety” benefits of each project is not a very useful criterion. All projects will consider customer and operator safety as they are designed, so this criterion will not be very helpful in narrowing the list of potential projects.

Risk – The assessment of risk should be balanced against the project benefits.

Operation and Maintenance Cost Estimating Methodology

The operations and maintenance cost estimating methodology represents industry practice for estimating costs for transit services such as those being considered by Sound Transit. The Panel suggests that those staff with operating and maintenance responsibilities in Sound Transit, and perhaps in other regional transit services, be involved in the process of developing O&M cost estimates. These individuals often bring a practical and useful perspective. In addition, the Panel agreed that the O&M costs associated with converting BRT to LRT in the I-90 alternative need to be reflected in the cost estimation. The Panel realizes that it is unclear at this time when such a conversion would take place, but at least such conversion costs should be acknowledged in the cost estimation process.

The Panel recommends that Sound Transit conduct sensitivity analyses of the key assumptions that underlie the cost estimation methodology. For example, how will the operating costs change if there are unexpected increases in labor costs or in cost of living adjustments? The sensitivity analyses allow one to bound the working estimates with some level of uncertainty associated with the key input variables.

Questions and Further Information Needs

During the course of the two-day meeting, Panel members made a number of requests for additional information. The following provides a brief summary of the key requests.

1. A summary of all Sound Move projects, including the original cost estimate, revised baseline budget, bid costs (if available), actual or current projected costs, and reasons for variation from original and baseline estimates.
2. The Panel would like to have further review of the ST2 Financial Plan. Additional information requested includes:
 - A comparison of the original Sound Move revenue estimates for both sales and use taxes and the MVET with the actual revenue experience to date.
 - A twenty-year historical trend in the escalation of real estate values for each of the three counties, as compared to the 4.7 % inflation rate for property values that is currently included in the financial plan.
 - Further discussion about the construction cost index and comparison to current construction costs.
3. Review of the issue paper regarding the BRT/Convertible to LRT option for the I-90 corridor.

4. Review of the analysis of options regarding the First Hill light rail station.
5. Any additional information from WSDOT or Sound Transit regarding the operation of the I-90 bridge with light rail, and any additional information about the effects of weather (wind, water spray) on the operation of light rail or BRT on the bridge.

The Panel would like to thank Sound Transit and WSDOT staff for their cooperation and response to our requests for information. We have found staff at both agencies to be very helpful and forthcoming with information. Our next meeting will be January 5 and 6, 2006. We look forward to continuing our discussion about the development of the ST2 package.

Sincerely,

Michael Meyer
Chair, Expert Review Panel

cc: Expert Review Panel Members
Senator Mary Margaret Haugen
Bob Drewel, Executive Director, Puget Sound Regional Council